

REMARKS

Claims 1-48 were pending in the application, of which Claims 1, 15, 25, and 39 were independent claims. Claims 5-11, 15-21, 36-37, and 46-47 were rejected under 35 U.S.C. § 112, Claims 1-3, 5-9, 25-27, and 29-32 were rejected under 35 U.S.C. § 102, and Claims 1-48 were rejected under 35 U.S.C. § 103. The Office has also required a new title. In response, certain claims have been amended or cancelled, and new claims have been added to the application. In addition the title has been amended.

Regarding Title

In response to the requirement that the title be amended, the Specification has been amended to change the title to “MULTI-STAGE COMPRESSOR PUMP HAVING BALL SCREW DRIVE” on page 1.

Acceptance of the new title is respectfully requested.

Rejections Under Section 112

Claims 5-11, 15-21, 36-37, and 46-47 were rejected under 35 U.S.C. § 112, second paragraph. In response, the claims have been amended to clarify the subject matter of the invention.

Reconsideration of the rejections under Section 112 is respectfully requested.

Rejections Under Section 102

Claims 5-11, 15-21, 36-37, and 46-47 were rejected under 35 U.S.C. § 102 based on U.S. Patent No. 4,734,013 to Valacaara. The rejections are traversed.

Valacaara discusses a pressure intensifier that utilizes at least three piston assemblies. The pistons are disposed along mutually parallel axes and equiangularly disposed with respect to a central axis of the intensifier.

In contrast, the invention as originally claimed requires a first and a second piston and “a connecting member for securing the first piston and the second piston together in a spaced apart manner along a common axis.” (Claim 15; *see also* Claim 39.) The claimed alignment of pistons along a common axis is not taught or suggested by Valacaara.

The noted claim limitation is now recited in each independent claim. As such, each independent claim is distinguishable over Valacaara. Each dependent claim incorporates the distinguishing limitation from its independent claim. Consequently, all claims are now patentable over Valacaara.

Reconsideration of the rejections under Section 102 is respectfully requested.

Rejections Under Section 103

Claims 1-12, 14-22, 24-36, 38-46, and 48 were rejected under 35 U.S.C. § 103 based on U.S. Patent No. 4,856,967 to Jones in view of U.S. Patent No. 6,079,797 to Ganzel. In addition, Claims 13, 23, 37, and 47 were rejected under 35 U.S.C. § 103 based on Jones. In response, although certain claims have been amended or cancelled to clarify the subject matter being claimed, the rejections are traversed. In particular, independent Claim 1 is replaced by Claim 49 and independent Claim 25 is replaced by Claim 54. New dependent claims have also been added to the application.

Jones discusses a high pressure pump that employs two piston chambers. One piston chamber provides fluid at a high pressure. The high pressure piston chamber is compressed using a motor with the aid of a booster chamber. Because the booster chamber piston is larger it can supply the majority of the motive force to compress the high pressure piston. There is, however, no interconnection of the two chambers.

Ganzel in comparison does interconnect an input chamber and an output chamber. However, Ganzel is directed to maintaining a smooth flow of fluid out of the pump. That flow is one-half the flow into the pump as shown in FIG. 6.

It is not apparent why or how one of ordinary skill in the art would modify Jones with Ganzel. For example, if the Jones pump were replaced by the Ganzel pump, what would become

of the Jones booster gas? Also, how would one recirculated fluid with the Ganzel pump? It is believed that one of ordinary skill in the art would not combine the two references.

In any event, Ganzel does not teach or suggest a pump to increase pressure of a fluid, as claimed by the Applicants. Instead, Ganzel maintains a more even flow by expelling one half the fluid during the compression stroke and one half the fluid during the expansion stroke.

Independent Claims 15 and 39 now clearly recite "where the fluid is compressed due to the reduced volume of the second piston chamber" as a limitation. In addition, independent Claims 49 and 54 recite "receiving a fluid at a specified input pressure" and "an output line for delivering the fluid at a specified output pressure higher than the specified input pressure" as a limitation. Jones operates on different fluids and Ganzel does not compress fluid to a higher pressure.

At least one of the noted claim limitations is recited in each independent claim. As such, each independent claim is distinguishable over Jones and Ganzel, either alone or in combination. Each dependent claim incorporates the distinguishing limitation from its independent claim. Consequently, all claims are now patentable over Jones and Ganzel.

Reconsideration of the rejections under Section 103 is respectfully requested.

Correspondence Address

The undersigned attorney requests that the correspondence address for this application be corrected to agree with the attorney's address of record with the United States Patent and Trademark Office:

20 Pickering Street
PO Box 920353
Needham, MA 02492

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

R.D. Johnson & Associates, P.C.

By _____/Rodney D. Johnson/
Rodney D. Johnson
Registration No. 36,558
Telephone: (781) 444-6844
Facsimile: (617) 412-3081

Dated: August 6, 2007